

Appln. No. 10/091,169
Amdt. dated February 6, 2004
Reply to Office Action of October 22, 2003

REMARKS/ARGUMENTS

By the present amendment, claim 13 has been amended to revise the dependency. This corrects the matter kindly noted by the Examiner and provides an antecedent basis for all language in the claim.

Withdrawal of the rejection under 35 U.S.C. §112 is respectfully requested.

Claims 1-4 and 8-21 were substantively rejected under 35 U.S.C. §102(b) on U.S. Patent 5,497,944 to Weston et al (Weston). Claims 5-7 were rejected on the same reference under 35 U.S.C. §103.

The Weston atomizing device shown in Fig. 4 and described at Col. 13, commencing at line 18 is referred to in the Office Action. This device employs a flexible tube 75. The tube may be pinched from its normal state, shown as the solid lines, by the hydraulic pressure of a secondary liquid 78 contained in pressure chamber 77 to expel its contents for nebulization. The pinched state is shown by the dashed lines. The tube then returns to its unstretched condition illustrated by the solid lines in Fig. 4 and in doing so sucks up liquid from supply 71 for use in a subsequent operation.

Differences in both concept and construction exist between the claimed subject matter of the present application and any teaching or suggestion of the Weston reference.

The gist of the liquid reservoir means of the present invention is to use the expanded state of the membranes to create a static overpressure on the liquid in the reservoir so that the liquid can be supplied to a nebulizing apparatus for nebulization.

This concept is completely opposite of the approach of the reference that is to avoid static pressures in the reservoir to prevent leaks or other problems. See, for example, Col. 3, lines 43 et seq. "The fluid need not be held under pressure in the device...."

Further, the teaching of the Weston reference is to use expansion of the tube to create a static underpressure in the liquid. See Col. 13, lines 42-47, i.e. the liquid product 70 is "sucked up" into the flexible tube by the expanding action of the tube.

Thus, in summary, the invention utilizes expansion of the membranes responsive to the liquid in the reservoir to apply pressure to the liquid whereas the reference structure utilizes expansion of flexible tube 75 to remove or reduce pressure on the liquid.

In addition to the foregoing conceptual differences, claim 1 distinguishes over any teaching or suggestion of the Weston reference in the following structural aspects. Lines 8 and 9 of claim 1 call for expansion of the chamber to distend the resilient membranes 62, 64. In Weston, expansion of the chamber from the condition shown as 75a to that shown as 75, does not distend or stretch the flexible tube 75. Rather, it merely returns it to the unstretched condition.

Further and as noted above, claim 1 calls for expansion of the chamber to cause the membranes to apply pressure to the liquid in the chamber. In Weston, expansion of the chamber to the condition shown in the solid lines in Fig. 4 relieves pressure on the liquid to allow liquid to be sucked up into the tube. Col. 13, lines 42-44.

With respect to the concluding element of the claimed structure, the Examiner urges that the Weston structure meets this description by "dint" of a fluid column. The concluding element of the claim has been amended to more clearly note that the principle on which the present invention operates is that illustrated in Fig. 2 and not through use of any fluid column.

The structure of claim 1 is neither anticipated nor rendered obvious by the Weston et al. reference and claim 1 is deemed allowable.

With respect to claims 3, 6, 7, and 12 there is clearly no teaching or suggestion in the Weston reference relating to the details of the membrane deforming surface set out in these claims 3, 6 and 7. As to the Examiner's comment in connection with claim 3, claim 3 describes the radius of curvature of the surface of the member in the nebulizer.

Claim 14 has been amended to more fully recite structure of the type illustratively shown in Fig. 5 of the present application. The Weston reference does not contemplate such a technique in filling the reservoir. Further, the structure recited in claim

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14 carries out an opposite action from that described in the Weston et al. reference. That is, claim 14 describes a means for applying a force to a membrane for drawing the membranes apart. This is in distinct contrast to Weston in which the release of a force on flexible tube 75 allows it to move apart to the tubular condition shown in Fig. 4. Claim 14 is allowable as are claims 15-20 that depend directly or indirectly from claim 14.

Claims 2, 5, 8-11, 13 and 21, are deemed allowable for the same reasons as claim 1 from which they depend as well as for the detailed subject matter recited therein.

Claims 1-21 are thus deemed to define subject matter patentable over the Weston et al. reference and to be allowable. Withdrawal of the rejection of the claims is respectfully requested.

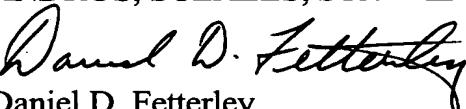
This application, as filed, was accompanied by an Information Disclosure Statement containing U.S. Patents 4,224,940; 5,894,841; and 6,056,213. A Form 1449 acknowledging consideration of these references did not accompany the Office Action of September 8, 2003. Acknowledgement of such consideration is requested in subsequent Patent Office correspondence.

With respect to the references of interest cited in the Office Action, U.S. Patent 5,957,891 shows the use of only a single membrane in forming a reservoir, not the first and second membranes described in the claims of the present application.

Passage of this application to allowance is respectfully requested.

Respectfully submitted,

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I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, Mail Stop – Amendments, P.O. Box 1450, Alexandria, VA 22313-1450 on the 6/6/04 day of February, 2004.

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